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10/643,563

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Wei Li

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HICKMAN PALERMO TRUONG & BECKER/ORACLE

2055 GATEWAY PLACE

SUITE 550

SAN JOSE, CA 95110-1083

EXAMINER

AHN, SANGWOO

ART UNIT

PAPER NUMBER

2168

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/643,563 | Applicant(s) LI ET AL. | |
| | Examiner SANGWOO AHN | Art Unit 2168 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23, 24, 26-29 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23, 24 and 26-29 is/are allowed.
- 6) ☒ Claim(s) 37 and 39 is/are rejected.
- 7) ☒ Claim(s) 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20081022, 20081023</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 23 – 24, 26 – 29 and 37 – 39 are pending in the present application.
Claim 37 has been amended.
Claims 1 – 22, 25 and 30 - 36 have been canceled.

Response to Arguments

2. Applicant's arguments with respect to claim 37 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,324,533 issued to Rakesh Agrawal et al. (Agrawal) in view of U.S. Patent Number 6,513,029 issued to Sanjay Agrawal et al. (Agrawal2).

Regarding claim 37, Agrawal discloses,

A method comprising performing a machine-executable operating involving instructions, wherein the machine-executed operation is at least one of:

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A) sending said instructions over transmission media (Figure 1, column 4, et seq.);

B) receiving said instructions over transmission media (Figure 1, column 4, et seq.);

C) storing said instructions onto a machine-readable storage medium (Figure 1, column 4, et seq.); and

D) executing the instructions (Figure 1, column 4, et seq.);

wherein said instructions are instructions which, when executed by one or more processors, cause the performance of a frequent itemset operation by performing the steps of:

dynamically selecting which occurrence counting technique to use from a plurality of available occurrence counting techniques based on conditions existing in a computing environment in which the frequent itemset operation is to be performed (C12:L21-32, *First, I/O normally refers to transferring data, so the I/O cost can be interpreted as the cost of transferring data. Second, workload of a computer system and resources available on a computer system are all related to the amount of data and data activity within the system. The cost estimation in Agrawal is based on a number of data characteristics like the number of items, total number of transactions, average length of a transaction, etc. These parameters suggest that the cost estimation is essentially based on*

how much data is being transferred (number of transactions), workload (number of transactions, average length of transactions) and resources available (the more the number of items or transactions, the less the available resources → also pertains to volatile memory available as the memory is also a resource). The recited conditions on which the cost estimation is based are well known in the data processing art to be the purpose of “cost estimation” within the computing environment, which is to lessen the workload and to increase the available resources, et seq.), wherein the conditions include workload of a computer system in

which the frequent itemset operation is to be performed, and an amount of volatile memory available to store a candidate prefix tree (C11:L17-33, First, I/O normally refers to transferring data, so the I/O cost can be interpreted as the cost of transferring data. Second, workload of a computer system and resources available on a computer system are all related to the amount of data and data activity within the system, et seq.); and

during said frequent itemset operation, using said selected occurrence counting technique to count occurrences of at least one combination to determine whether said at least one combination

satisfies frequency criteria associated with said frequent itemset operation (C3:L23-24, et seq.).

Agrawal does not explicitly disclose that conditions are which occur before the actual operation is performed.

However, Agrawal2 discloses that conditions used in selection process are which occur before the actual operation is performed (column 2 line 65 - column 3 line 7: the total cost of the workload is calculated, several different sets of Indexes and materialized views are measured in this manner to find the best set since building them can be very expensive due to updates and storage constraints, column 7 lines 49 - 54, et seq.). At the time of the invention, it would have been obvious to a person of ordinary skill in the data processing art to modify Agrawal's method of selecting itemset counting technique to incorporate Agrawal2's method of using conditions which occur before the actual operation such as workload and storage constraint, thus enabling system which provides better recommendations and which makes the selection process faster.

Regarding claim 39, Agrawal discloses determining that a particular occurrence counting technique will not be considered during any phase of the frequent itemset operation, and performing the frequent itemset operation without performing startup operations for said particular occurrence counting technique (C11:L40-44, et seq.).

Allowable Subject Matter

4. Claims 23 and its dependent claims 24 and 26 – 29 are allowable over prior art.

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The closest prior art Agrawal teaches in the same field of the invention, an integrated database and data-mining system, related to selecting itemset counting technique using cost calculation. However, Agrawal fails to disclose the combination of detailed elements in claim 23, including “wherein generating cost estimates for each of the plurality of available occurrence counting techniques based on an estimated I/O cost comprises: determining a size of a candidate prefix tree ... generating I/O cost estimate for a prefix tree technique based, at least in part on the size of the candidate prefix tree and the amount of memory that can be used to store the candidate prefix tree”.

Agrawal teaches the itemset counting technique selection process but fails to specify what parameters are taken into consideration. The above features in conjunction with all other limitations of the dependent and independent claims 23 – 24 and 26 – 29 are allowable.

5. Claim 38 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANGWOO AHN whose telephone number is (571)272-5626. The examiner can normally be reached on M-F 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571) 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11/20/2008
/S. A./
Examiner, Art Unit 2168

/Tim T. Vo/
Supervisory Patent Examiner, Art Unit 2168